ANSWER 1 OF 7 INSPEC COPYRIGHT 2003 IEE
AN 1980:1436504 INSPEC DN A79099572; B80000630
AB Shallow acceptors have been incorporated in ZnSe by liquid-phase **epitaxy** using Bi as a solvent. Epilayers with Li, Na, and P as dopants were proven to be p type by establishing the position of the Fermi level by photocapacitance and photoconductivity measurements, and by measuring the potential drop at biases Schottky barriers.
DOCUMENT NUMBER: A79099572; B80000630
TITLE: Shallow acceptors and p-type ZnSe.
AUTHOR: Kosai, K.; Fitzpatrick, B.J.; Grimmeiss, H.G.; Bhargava, R.N.; Neumark, G.F. (Philips Lab., Briarcliff Manor, NY, USA)
SOURCE: Applied Physics Letters (15 July 1979) vol.35, no.2, p.194-6. 13 refs.
CODEN: APPLAB ISSN: 0003-6951
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental
COUNTRY: United States
LANGUAGE: English

L1 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2003 ACS
AB The growth of GaN from Li-Ga melts in atm. of N-H admixt. at pressure in range 1-3 Atm was studied. Concn. of H in atm. was changed within the limits from 0 up to 15 vol.%. The min. concn. of Li in melt was 1 at.%, and max. was 20 at.%. The growth was held on Si(0001) faces of substrates 6H-SiC by Lely's method in range of temps. from 600 up to 1150.degree.. Under chosen conditions of expt., both the islet growth of GaN on substrate and the spontaneous nucleation of crystals on the surface of melt occurred. Optical characteristics, compn. and structure of obtained samples were studied.
ACCESSION NUMBER: 2002:346187 CAPLUS
DOCUMENT NUMBER: 137:86145
TITLE: Liquid-phase **epitaxy** of gallium **nitride** from **lithium**-gallium melts
AUTHOR(S): Gavrilin, A. V.; Suhoveev, V. A.; Ivantsov, V. A.
CORPORATE SOURCE: Physics-Technical Institute im. F.Ioffe of the Russian Academy of Science, Russia
SOURCE: Advances in Condensed Matter and Materials Research (2002), 2, 163-168
CODEN: ACMMCC
PUBLISHER: Nova Science Publishers, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2003 ACS
AB The effects of various chem. treatments on (100) GaSb surface with the aim to develop procedures of polishing of GaSb substrates, surface prepn. prior to **LPE** growth, metal and dielec. deposition, fabrication of patterns were examd. Chemomech. polishing in Br2 and ethylene glycol followed by anodic oxidn. and oxide removal enables one to fabricate damage-free GaSb surface with the roughness of .apprx.1.5 nm. Surface treatment in 30 HCl-1HNO3 followed by 5% HCl etch gives the best results for surface cleaning prior to metal deposition. The optimum pre-**epitaxial** treatment includes the use of 1M Na2S soln. and H2 anneal. For features patterning 60HCl-1H2O2-1H2O enables etching at rate of .apprx.4 .mu.m /min, however, to achieve highly anisotropic etching of small size features the use of CCl4/H2 plasma is the most suitable.
ACCESSION NUMBER: 2001:787844 CAPLUS
DOCUMENT NUMBER: 136:46209
TITLE: Chemical processing of GaSb related to surface preparation and patterning
AUTHOR(S): Papis-Polakowska, Ewa; Piotrowska, Anna; Kaminska, E.;

Guziewicz, M.; Piotrowski, Tadeusz T.; Kudla, Andrzej; Wawro, A.
CORPORATE SOURCE: Institute of Electron Technology, Warsaw, Pol.
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (2001), 4413(Epilayers and Heterostructures in Optoelectronics and Semiconductor Technology), 82-88
CODEN: PSISDG; ISSN: 0277-786X
PUBLISHER: SPIE-The International Society for Optical Engineering
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2003 ACS
AB A low-cost and efficient method for growing a semiconductor bulk single crystal involves simultaneously growing semiconductor bulk single crystals on the both sides of a base substrate by, e.g., a hydride VPE or **LPE**. Specifically, the bulk single crystal may comprise GaN, InN, InGaN, or AlGaN, and the substrate may comprise Al2O3, SiC, ZnO, LiGaO2, MgAl2O4, Si, GaP, or GaAs. Addnl., the bulk single crystal may have a semiconductor device such as a semiconductor laser, LED, FET, or HBT.
ACCESSION NUMBER: 2001:683985 CAPLUS
DOCUMENT NUMBER: 135:234212
TITLE: Growth of semiconductor bulk single crystal
INVENTOR(S): Shimoyama, Kenji; Fujii, Katsushi
PATENT ASSIGNEE(S): Mitsubishi Chemical Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001253794	A2	20010918	JP 2000-66797	20000310
PRIORITY APPLN. INFO.:			JP 2000-66797	20000310

L1 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2003 ACS
AB It is difficult to prep. simple KTN bulk crystals or good transparent KTN ceramics, which restricts use for its optical characteristics. K(Ta1-xNbx)O3 (KTN), has many good properties, including electro-optic characteristics, nonlinear optic characteristics and pyroelectricity and a high K. When x = 0.35, it can be applied in a wide variety of fields with the highest electro-optic coeff. Methods of prepg. KTN films by sol-gel, **LPE**, MOD, RF-PMS, etc., with transparent quartz as the substrate caused interaction between interfaces and the generation of interphase pyrochlore at high temp. KTN films with pure perovskite phase structure, therefore, could not be achieved by previous methods. The pulsed laser deposition (PLD) technique is a recently developed film prepn. method. It has many advantages, e.g., high d. of pulse laser energy, a lower substrate temp. for prepg. films on substrates of a variety of materials. S. Yilmaz was the first to use this technique to prep. KTN films. In order to solve the offset of the volatile **potassium**, he used the KTN crystal, KNO3, as the target. Unfortunately, the quality of the film was affected because of the nonproportional ingredients of the crystal target and the intervention of elemental **nitrogen**. The sol-gel method has many good characteristics, e.g., high uniformity, simplicity for mol. mingling and for controlling the ingredients. When KTN ceramics with high uniformity are used for the target, along with the added advantages of PLD, high-quality KTN films can be expected. The authors prepd. KTN ceramics with different **potassium**-rich ingredients by the sol-gel and atm. sintering method. First, we prepd. films with a pure

perovskite phase on the simple quartz crystal (100) substrate through the PLD technique. We also analyzed and measured prepd. films by XRD and SEM. Results suggest that the films grow along the orientation (100). The main phase is the perovskite with a small proportion of pyrochlore phase (as little as 3%). In addn., the surface without crazing is intense.

ACCESSION NUMBER: 2001:98312 CAPLUS
DOCUMENT NUMBER: 134:226110
TITLE: Preparation of KTN films on single crystal quartz substrates
AUTHOR(S): Zhang, D. M.; Li, Z. H.; Zhang, M. J.; Wang, X. D.; Huang, M. T.; Yu, B. M.
CORPORATE SOURCE: Physics Department, Huazhong University of Science & Technology, Wuhan, Peop. Rep. China
SOURCE: American Ceramic Society Bulletin (2001), 80(2), 57-61
CODEN: ACSBA7; ISSN: 0002-7812
PUBLISHER: American Ceramic Society
DOCUMENT TYPE: Journal
LANGUAGE: English

L1 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2003 ACS
AB With the recognition of the importance of the structural perfection of GaN films for highest performance devices, the growth of GaN bulk crystals or thick GaN layers to be used as substrates as well as high-quality **epitaxial** layers is considered with increased interest. Different approaches are discussed. GaN films were grown by **LPE** on (0001)sapphire, on (001)LiGaO2, on (100)LiAlO2, and on vapor-grown GaN seed films from Ga(l) at 900.degree..

ACCESSION NUMBER: 2000:270074 CAPLUS
DOCUMENT NUMBER: 132:286498
TITLE: Crystal growth and liquid-phase **epitaxy** of gallium **nitride**
AUTHOR(S): Klemenz, C.; Scheel, H. J.
CORPORATE SOURCE: Cristallogenese, Institute of Micro- and Optoelectronics, Swiss Federal Institute of Technology, Lausanne, CH-1007, Switz.
SOURCE: Journal of Crystal Growth (2000), 211(1-4), 62-67
CODEN: JCRGAE; ISSN: 0022-0248
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2003 ACS
AB The **LPE** was studied of GaN from Ga-Li melts in N-H atms. with pressures of 1-3 atm. Si and SiC were used as the substrates.

ACCESSION NUMBER: 1999:770543 CAPLUS
DOCUMENT NUMBER: 132:115326
TITLE: Liquid-phase **epitaxy** of GaN from gallium-**lithium** melts
AUTHOR(S): Gavrilin, Andrei Valer'evich; Sukhoveev, Vitalii Alekseevich; Ivantsov, Vladimir Aleksandrovich
CORPORATE SOURCE: Fiz.-Tekh. Inst. im. A. F. Ioffe, RAN, Russia
SOURCE: Perspektivnye Materialy (1999), (2), 22-25
CODEN: PRMTFY; ISSN: 1028-978X
PUBLISHER: TOO "Interkontakt Nauka"
DOCUMENT TYPE: Journal
LANGUAGE: Russian

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